REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-14 and 17-25 are presently active; Claims 15 and 16 have been presently canceled without prejudice, and Claims 1-3, 5, 7, 9, 17, 19, 20, 21, 22, and 23 have been presently amended. No new matter has been added.

In the outstanding Office Action, Claims 1, 2 and 21 were rejected under 35 U.S.C. § 102(a) as being anticipated by Japanese Patent Application Publication JP 2002-273130; Claims 15, 19 and 20 were rejected under 35 U.S.C. § 102(a) as being anticipated by European Patent Application Publication EP 1142619 A1; Claims 17 and 18 were rejected under 35 U.S.C. § 102(e) as being anticipated by Ichikawa et al. (U.S. Patent No. 6,656,564 B2); Claims 1 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application Publication EP 1142619 A1 in view of Japanese Patent Application Publication JP 6-241018; Claims 2, 16, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application Publication EP 1142619 A1 in view of Outland (U.S. Patent No. 4,276,071); and Claims 24 and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ichikawa et al in view of European Patent Application Publication EP 1142619 A1. Claims 3-14 were indicated as being allowed.

Applicants acknowledge with appreciation the indication of allowance for Claims 3-14.

Applicants traverse the art rejections for the following reasons:

Regarding the claim rejections under 35 U.S.C. § 102

M.P.E.P. § 2131 requires for anticipation that each and every feature of the claimed invention must be shown in as complete detail as is contained in the claim.

Claim 1 and JP 2002-273130

Claim 1 defines:

> a plurality of honeycomb filters including a honeycomb filter having a rectangular cross sectional shape when cut parallel to the end faces and provided with a long side having a length B1 and a short side having a length B2 in which the ratio B1/B2 is between 1.1 and 3.0.

JP 2002-273130 describes a ceramic filter assembly having a generally elliptical cross sectional shape. The ceramic filter in JP 2002-273130 is formed by adhering and shaping a plurality of columnar honeycomb filters 1. However, the columnar honeycomb filters 1 in JP 2002-273130 do ***not*** have a rectangular cross sectional provided with a long side having a length B1 and a short side having a length B2 in which the ratio B1/B2 is between 1.1 and 3.0, as defined in Claim 1. Rather, the columnar honeycomb filters 1 in JP 2002-273130 have ***a square cross sectional shape.***[1]

Therefore, Claim 1 is not anticipated by JP 2002-273130

Claim 2 and JP 2002-273130

Claim 2 defines:

> each honeycomb filter including a plurality of rectangular cells extending along an axis of the filter with each cell provided with a long side having a length C1 and a short side having a length C2 in which the ratio C1/C2 is between 1.1 and 3.0.

JP 2002-273130 describes a ceramic filter assembly having a generally elliptical cross sectional shape. The ceramic filter in JP 2002-273130 is formed by adhering and shaping a

[1] A ratio B1/B2 equal to 1.0 would define a square shape.

plurality of columnar honeycomb filters 1. However, the columnar honeycomb filters 1 in JP 2002-273130 do not have a plurality of rectangular cells each having a long side having a length C1 and a short side having a length C2 in which the ratio C1/C2 is between 1.1 and 3.0. JP 2002-273130 describes neither the shape of cells nor the ratio C1/C2.

Therefore, Claim 2 is not anticipated by JP 2002-273130.

Claims 15, 19 and 20 and EP 1142619 A1

The present amendment canceling claims and clarifying the claim dependence overcomes this rejection.

Claims 17 and 18 and Ichikawa et al:

Claim 17 defines:

> a plurality of rectangular cells extending along an axial direction of the honeycomb filter;
> each rectangular cell being defined by a relatively thick cell wall and a relatively thin cell wall that are orthogonal to each other, and being made of a porous ceramic sintered material; and
> the relatively thick cell walls having a uniform wall thickness and the relatively thin cell walls having a uniform wall thickness.

Ichikawa et al describe a columnar honeycomb filter including a plurality of rectangular cells each defined by a relatively thick cell wall and a relatively thin cell wall. In Ichikawa et al, cells are defined by relatively thick cell walls and relatively thin cells walls. However, the relatively thick cell walls do not have a uniform wall thickness. See Figs. 2 and 3 of Ichikawa et al.

Therefore Claim 17 is not anticipated by Ichikawa et al.

Claim 21 and JP 2002-273130

Claim 21 defines:

> when a hypothetical first straight line intersects the generally elliptical contour at two points in which the distance therebetween is maximum and a hypothetical second straight line orthogonal to the first straight line intersects the generally elliptical contour at two points in which the distance therebetween is maximum, ***the number of sealing material layers the first straight line of the assembly traverses is less than or equal to the number of sealing material layers the second straight line traverses***. [Emphasis added.]

JP 2002-273130 describes a ceramic filter assembly having a generally elliptical cross sectional shape. The ceramic filter in JP 2002-273130 is formed by adhering a plurality of columnar honeycomb filters 1 with ceramic sealing material layers 5. JP 2002-273130 further describes that, when a hypothetical first straight line (e.g., major axis) intersects the generally elliptical contour at two points in which the distance therebetween is maximum and a hypothetical second straight line (e.g., minor axis) orthogonal to the first straight line intersects the generally elliptical contour at two points in which the distance therebetween is maximum, the number of sealing material layers the first straight line of the assembly traverses is ***greater than the number of sealing material layers the second straight line traverses***.

More specifically, in Fig. 4(b) of JP 2002-273130, the number of sealing material layers the first straight line (e.g., major axis) of the assembly traverses is three, the number of sealing material layers the second straight line (e.g., minor axis) traverses is one. In Fig. 7(g) of JP 2002-273130, the number of sealing material layers the first straight line of the assembly traverses is three, the number of sealing material layers the second straight line traverses is one. In Fig. 10 of JP 2002-273130, the number of sealing material layers the first straight line of the assembly traverses is five, the number of sealing material layers the second straight line traverses is three.

Therefore Claim 21 is not anticipated by JP 2002-273130.

Regarding the claim rejections under 35 U.S.C. § 103

M.P.E.P. § 2143.03 requires, to establish a case of *prima facie* obviousness, all the claim limitations must be taught or suggested by the prior art.

Claim 1 and EP 1142619 A1 in view of JP 6-241018

Applicants submit that the combination of the range of the ratio B1/B2 and the orientation of the long side and the short side of the honeycomb filter, as recited in claim 1, can efficiently solve crack formation problems in a ceramic filter assembly having a generally elliptical cross sectional shape. Without recognizing crack formation problems in elliptical-cross sectional ceramic filter assemblies, Applicants respectfully submit that it would not have been obvious for one skilled in the art at the time of the invention to arrive at the elements recited in Claim 1. Indeed, the inventors have found (as described in the paragraph bridging pages 12 and 13 of the specification that, if the ratio of B1/B2 is greater than 3, thermal stress is more likely to act on the filter due to thermal shock, and cracks are more likely to occur. Applicants respectfully submit that these results are unexpected over the art, which has no recognition of this problem.

For example, EP 1142619 A1 neither recognizes nor addresses crack formation problems in elliptical-cross sectional ceramic filter assemblies. EP 1142619 A1 does not provide any solution for the crack formation problem in elliptical-cross sectional ceramic filter assemblies.

EP 1142619 A1 shows a columnar honeycomb filter having a rectangular cross section with a long side and a short side. See Fig. 10 of EP 1142619 A1. However, EP 1142619 A1 is silent on the ratio B1/B2 of between 1.1 and 3.0. EP 1142619 A1 does not disclose or suggest that the honeycomb filter being arranged so that the long side and the

short side of the honeycomb filter are respectively parallel to the major axis and the minor axis of the assembly.

JP 6-241018 addresses crack formation problems in a ceramic filter assembly having a polygonal-cross sectional shape. JP 6-241018 does not address crack formation problems in generally elliptical-cross sectional ceramic filter assemblies. JP 6-241018 does not disclose grinding the outer surface of the ceramic filter assembly so that the assembly has an elliptical cross sectional shape.

JP 6-241018 is silent on the ratio B1/B2 of between 1.1 and 3.0. JP 6-241018 does not disclose or suggest that the honeycomb filter being arranged so that the long side and the short side of the honeycomb filter are respectively parallel to the major axis and the minor axis of the assembly.

Accordingly, Applicants' results are unexpected over the art, which has no recognition of the problem or teachings of the claimed range.

Guidelines for the Patent and Trademark Office, published in Federal Register Vol. 72, No. 195, on Wednesday October 10, 2007entitled: "Examination Guidelines for Determining Obviousness under 35 U.S.C. 103 in View of the Supreme Court Decision in KSR International v. Teleflex Inc," indicate that:

> Office personnel should consider all rebuttal evidence that is timely presented by the applicants when reevaluating any obviousness determination. Rebuttal evidence may include evidence of "secondary considerations," such as "commercial success, long felt but unsolved needs, [and] failure of others", and may also include evidence of unexpected results. Office personnel must articulate findings of fact that support the rationale relied upon in an obviousness rejection. As a result, applicants are likely to submit evidence to rebut the fact finding made by Office personnel. For example, in the case of a claim to a combination, applicants may submit evidence or argument to demonstrate that:
>
> (1) one of ordinary skill in the art could not have combined the claimed elements by known methods (e.g., due to technological difficulties);
>
> (2) the elements in combination do not merely perform the function that each element performs separately; or
>
> (3) the results of the claimed combination were unexpected.

> Once the applicant has presented rebuttal evidence, Office personnel should reconsider any initial obviousness determination in view of the entire record. All the rejections of record and proposed rejections and their bases should be reviewed to confirm the continued viability. The Office action should clearly communicate the Office's findings and conclusions, articulating how the conclusions are supported by the findings.

Hence, Applicants respectfully request that the examiner reconsider the initial obviousness determination in view of the arguments provided here and the rebuttal evidence of unexpected results.

Moreover, Applicants submit that it would not be proper for the examiner to consider the claimed range of B1/B2 to be a matter of routine optimization. M.P.E.P. § 2144.05 states that only result-effective variables can be optimized. In particular, M.P.E.P. § 2144.05 states

> A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.

Thus, with neither reference disclosing nor suggesting the ratio B1/B2 of between 1.1 and 3.0, with the Office not establishing from the art that this claim element is not unexpected, and with the Office not establishing from the art that this claim element is a result-effective variable, a case of *prima facie* obviousness has not been established against Claim 1.

Claim 2 and EP 1142619 A1 in view of Outland

Applicants submit that the combination of the range of the ratio C1/C2 and the orientation of the long side and the short side of the cells, as recited in Claim 2, can solve crack formation problems in a ceramic filter assembly having a generally elliptical cross sectional shape. Indeed, the inventors have found (as described in the paragraph on page 14 of the specification (lines 8-11) that, if the ratio of C1/C2 is greater than 3, thermal stress is

more likely to act on the filter due to thermal shock, and cracks are more likely to occur. Applicants respectfully submit that these results are unexpected over the art, which has no recognition of this problem.

Neither EP 1142619 A1 nor Outland addresses crack formation problems in a ceramic filter assembly having a generally elliptical cross sectional shape. Without recognizing crack formation problems in elliptical-cross sectional ceramic filter assemblies, it is not obvious for one skilled in the art to arrive at said combination recited in Claim 2.

The Office Action acknowledges that EP 1142619 A1 fails to disclose the limitation of the ratio C1/C2 being between 1.1 and 3.0. The Office Action appies Outland for tis teaching in Fig. 5b. Outland shows in Fig. 5b rectangular cells each having a short side and a long side. See also col. 6, lines 3-11. However, Outland does not disclose the ratio C1/C2 being between 1.1 and 3.0. Accordingly, Applicants' results are unexpected over the art, which has no recognition of the problem or teachings of the claimed range

Moreover, it would not be proper for the examiner to consider the claimed range of C1/C2 to be a matter of routine optimization. M.P.E.P. § 2144.05 states that only result-effective variables can be optimized. As noted above, M.P.E.P. § 2144.05 states

> A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.

Thus, with neither reference disclosing nor suggesting the ratio C1/C2 of between 1.1 and 3.0, with the Office not establishing from the art that this claim element is not unexpected, and with the Office not establishing from the art that this claim element is a result-effective variable, a case of *prima facie* obviousness has not been established against Claim 2.

In addition, M.P.E.P. § 2143 requires for a *prima facie* case of obviousness that the teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. Outland does not disclose a ceramic filter assembly including a plurality of columnar honeycomb filters adhered together. Rather, Outland discloses monolithic filter elements. None of Outland nor EP 1142619 Al suggests how a monolithic filter element of Outland would be applied to the ceramic filter assembly of EP 1142619 Al.

For this additional reason, Applicants submit that one of ordinary skill in the art at the time of the invention (without Applicant's specification as a roadmap) would not have motivation for the Office's asserted combination rejection based on EP 1142619 and Outland.

Claim 21 and EP 1142619 A1 and JP 6-241018

Neither EP 1142619 A1 nor JP 6-241018 describes a ceramic filter assembly having ***a generally elliptical cross sectional shape*** in which when a hypothetical first straight line intersects the generally elliptical contour at two points in which the distance therebetween is maximum and a hypothetical second straight line orthogonal to the first straight line intersects the generally elliptical contour at two points in which the distance therebetween is maximum, the number of sealing material layers the first straight line of the assembly traverses is less than or equal to the number of sealing material layers the second straight line traverses, as defined in Claim 21.

In particular, the ceramic filter assemblies of Figs. 2, 13 and 15 of EP 1142619 do not have a generally elliptical cross sectional shape, and the ceramic filter assembly of Fig. 3 of JP 6-241018 does not have a generally elliptical cross sectional shape.

Thus, with neither reference disclosing or suggesting a filter assembly not have a generally elliptical cross sectional shape, a case of *prima facie* obviousness has not been established against Claim 21.

Conclusion: In view of the present amendment and in light of the above discussions, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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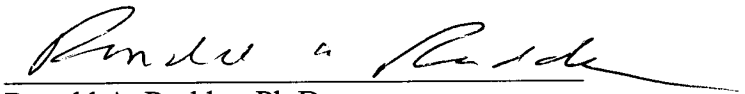

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